

**REMARKS**

This Amendment is responsive to the Office Action mailed on October 4, 2004. Claim 2 is amended. Claims 1-24 are pending.

Claims 12-21 are allowed. The Examiner has indicated that claims 2-9 and 24 contain allowable subject matter.

Claims 1, 10, 11, and 22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sriram (US 5,463,620).

Claim 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sriram.

Applicants respectfully traverse these rejections in view of the amended claims and the following comments.

**Discussion of Amended Claims**

Claim 2, which the Examiner indicates contains allowable subject matter, is amended into independent form by the inclusion of the subject matter of claim 1. Accordingly, claims 2-9 are in condition for immediate allowance.

**Discussion of Sriram**

Claims 1, 10, 11, and 22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sriram. This rejection is respectfully traversed. An anticipation rejection requires that each and every element of the claimed invention as set forth in the claim be provided in the cited reference. See *Akamai Technologies Inc. v. Cable & Wireless Internet Services Inc.*, 68 USPQ2d 1186 (CA FC 2003), and cases cited therein. As discussed in detail below, Sriram does not meet the requirements for an anticipation rejection.

Sriram discloses a data packet scheduling scheme for provisioning minimum reserved or

minimum guaranteed bandwidths to different traffic types. In contrast, Applicants' claimed invention provides a scheme for rate-limiting the amount of allowable bandwidth to different traffic types. Providing minimum guaranteed bandwidth and rate-limiting the amount of allowable bandwidth are completely different aspects for any data packet scheduling algorithm.

In particular, Sriram deals with how to guarantee the minimum bandwidth to data packet flows from different traffic types when the system is congested. In contrast, the present invention deals with how to limit the maximum bandwidth to data packet flows from different traffic types when the system is not congested.

As indicated by the Examiner on page 4 of the Office Action, in Sriram, "if any one of the queues contains no cells, then the server completely passes over the empty queue and immediately moves on to the next queue in sequence to remove its allocated number of cells. If any of the queues contains a number of cells the server 48 is scheduled to remove during cycle time period, then the server 48 removes cell from that queue until it is empty and immediately moves on to the next queue." As such, in Sriram, in any period of time, if there is only one queue at the server 48 that always has cells (or data packets) backlogged and all the other queues are empty, the Sriram scheme will schedule all the cells (or data packets) from that backlogged queue. In such an example, that queue might potentially receive a bandwidth of up to 150Mb/s when the system is not congested, which is much higher than the guaranteed minimum percentage of the total bandwidth, which is 10Mb/s for low-speed data for the example (Col. 5, line 60). The scheme of Sriram is designed, together with admission control, to guarantee the minimum percentage of the total bandwidth available on the output link to flows of different traffic types. In Sriram, in any period of time, if all the queues always have cells (or data packets) backlogged (i.e., a system congestion condition), each of the queues will obtain its minimum guaranteed bandwidth. For example, the low-speed data queue will receive its guaranteed bandwidth of 10Mb/s.

However, Sriram does not disclose or remotely suggest actually rate limiting the allowable bandwidth in a scheduler as claimed by Applicants.

In particular, Applicants' claim 1 provides a scheduler operatively coupled to the memory

and the channel and configured to allocate amounts of the total bandwidth of the channel to each of the core groups that is backlogged, while limiting the amount of allocated bandwidth, and a corresponding transfer rate of packets of data, for each core group to a maximum allowable bandwidth for each core group, to schedule transfer of packetized data of the core groups from the memory to the channel in according with the respective amounts of allocated bandwidth for the core groups.

Applicants' claim 22 provides control means for controlling amounts of bandwidth of the output port provided for each of the groups for transferring the packets of data via the output port, the amount of bandwidth provided for each group varying with a number of groups containing packets of data and being limited to a maximum amount of bandwidth associated with each group.

As such, with Applicants' claimed invention, the rate limiting of maximum allowable bandwidth means that, even if in a period of time when there is only one queue in the system that has data packets backlogged, the scheduler will only schedule data packets from that queue up to the maximum bandwidth allowed for that queue, and that queue will not receive the bandwidth of the overall output port even if it is the only queue in the system having packets. This is the rate limiting aspect of data packet scheduling provided by the present invention, which is in contrast to the techniques for the minimum guaranteed bandwidth aspect of data packet scheduling disclosed in Sriram.

As Sriram does not disclose each and every element of the invention as claimed, the rejections under 35 U.S.C. § 102(b) are believed to be improper, and withdrawal of the rejections is respectfully requested. See, *Akamai Technologies Inc., supra*.

Applicants respectfully submit that the present invention is not anticipated by and would not have been obvious to one skilled in the art in view of Sriram, taken alone or in combination with any of the other prior art of record.

Further remarks regarding the asserted relationship between Applicants' claims and the prior art are not deemed necessary, in view of the foregoing discussion. Applicants' silence as to any of the Examiner's comments is not indicative of an acquiescence to the stated grounds of

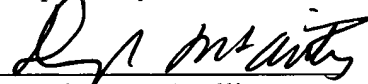
rejection.

Withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) is therefore respectfully requested.

Conclusion

The Examiner is respectfully requested to reconsider this application, allow each of the pending claims and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,



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